645.

Accession Number

12388832

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Title

Laser beat wave terahertz generation in a clustered plasma in an azimuthal magnetic field

Source

Physics of Plasmas, vol.18, no.5, May 2011, 053109 (5 pp.). Publisher: American Institute of Physics, USA.

Abstract

Laser beat wave excitation of terahertz radiation in a rippled density clustered plasma, in the presence of an azimuthal magnetic field, is investigated. The lasers exert a beat ponderomotive force on cluster electrons, imparting them an oscillatory velocity with a significant transverse component due to the azimuthal magnetic field. The oscillatory velocity beats with the cluster density ripple and produces a nonlinear current, driving terahertz radiation. The terahertz field turns out to have ring shaped distribution. Its amplitude is enhanced by the cluster plasma resonance when 43n_{c0}r_{c0}³n_e/(²-pe²/3)>n₀/². (24 References).